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COVER SHEET

Access 5 Project Deliverable

Deliverable Number: FT005

Title: Airspace Operations Demo Functional Requirements Matrix

Filename: FT005_Air Operations Demo Functional Requirements Matrix_V3_FINAL.xls

Abstract: The Flight IPT assessed the reasonableness of demonstrating each of the Access 5 Step 1 functional requirements. The functional requirements listed in this matrix are from the September 2005 release of the Access 5 Functional Requirements Document. The demonstration mission considered was a notional Western US mission (WUS). The conclusion of the assessment is that 90% of the Access 5 Step 1 functional requirements can be demonstrated using the notional Western US mission.

Status:
SEIT-Approved

Limitations on use: This document represents thoughts and ideas of the Flight IPT work package team. It has not been reviewed or approved as an Access 5 project position on this subject. In addition to SEIT review and comment, the information also needs substantiation through simulation/flight demonstrations.

This document represents the project position on functions and performance requirements limited to enroute operations above FL430. Operations below FL430 and terminal operations have not been addressed in this document.

This document is based on a notional Airspace Operations Demonstration mission comprising flight elements carried out in the NAS as well as in restricted airspace. The notional mission is compatible with the notional mission described in FT007 Notional AOD Plan.

Air Operations Demo Functional Requirements Matrix

Functional Requirements Matrix based on Functional Requirements Doc Ver 2, Sept 2005

	Functional Requirements			Demo Category	Demo'able				Demonstration Method
High Level Functions	Low Level Functions	FR#	Work package ID #		WUS Mission	comments	WUS demo'd	Step 1 Req	
AVIATE	Change Altitude	**5.1.2.1.1**		Mission Operations	yes		1	1	
	Change Heading	**5.1.2.1.2**		Mission Operations	yes		1	1	
	Change Speed	**5.1.2.1.3**		Mission Operations	yes	altair flt env may leave little room for variations	1	1	
	Change Ground Path	**5.1.2.2.1**		Mission Operations	yes		1	1	
	Change Speed	**5.1.2.2.2**		Mission Operations	yes		1	1	
	Enable the pilot to Maneuver UA	**5.1.2.3**	HSI F1	Mission Operations	yes		1	1	
	Enable pilot to monitor flight operations	**5.1.2.4**	HSI F2	Mission Operations	yes		1	1	
	Cruise	**5.1.3**		Mission Operations	yes		1	1	
	Recover during normal operations	**5.1.4.1**		Mission Operations	yes		1	1	
	Recovery during non-normal operations	**5.1.4.2**		Mission Operations	yes	mission planning	1	1	
	Maintain structural integrity	**5.1.5**		Mission Operations	yes		1	1	
NAVIGATE	Access mission planning data	**5.2.1.1**	MP F1	Mission Planning	yes		1	1	
	Evaluate mission planning data	**5.2.1.2**	MP F2	Mission Planning	yes		1	1	
	Create mission plan	**5.2.1.3**	MP F3	Mission Planning	yes		1	1	
	Record mission plan	**5.2.1.4**	MP F4	Mission Planning	yes		1	1	
	Provide required information to the ATM system	**5.2.1.5**	MP F5	Mission Planning	yes		1	1	
	Identify current postion	**5.2.2**		Mission Operations	yes		1	1	
	Determine how to transition to destination	**5.2.3**		Mission Operations	yes		1	1	
	Produce navigation command	**5.2.4**		Mission Operations	yes		1	1	
	Execute navigation command	**5.2.5**		Mission Operations	yes		1	1	
	Convey navigational information to the pilot	**5.2.6.1**	HSI F4	Mission Operations	yes		1	1	
	Pilot updates to flight plan	**5.2.7.1**	HSI F5	Mission Operations	yes		1	1	
MUNICATE	Transmit information within the UAS	**5.3.1.1**		Communications	yes		1	1	
	Receive information within the UAS	**5.3.1.2**		Communications	yes		1	1	
	Tune radio to assigned channel	**5.3.2.1**	C3-ATC F1	Communications	yes		1	1	
	Receive using human systems interface	**5.3.2.2.1**	HSI F6	Communications	yes		1	1	
	Transmit signal indication	**5.3.2.3.1**	C3-ATC F3	Communications	yes		1	1	
	Transmit only during transmit signal indication	**5.3.2.3.2**	C3-ATC F5	Communications	yes		1	1	
	Entry into a talk group	**5.3.2.3.3**	C3-ATC F6	Communications	yes		1	1	

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COM	Transmit using human systems interface	**5.3.2.3.4**	HSI F6	Communications	yes		1	1	
	Limit interference	**5.3.2.4.1**	C3-ATC F7a	Communications	no			1	
	Use allocated spectrum	**5.3.2.4.2**	C3-ATC F7b	Communications	yes	Gnd Test	1	1	
	Set/modify transponder code	**5.3.2.5.1**		Communications	yes		1	1	
	Enable/disable reporting capability	**5.3.2.5.2**		Communications	yes		1	1	
	Receive transponder data	**5.3.2.6**		Communications	no	will receive ADS-B data		1	
AVOID HAZARDS	Avoid collisions by being detectable to other aircraft	**5.4.2.1**		Traffic Avoidance	yes	Mode C transponder	1	1	
	Avoid collision threats identified by ATC	**5.4.2.2**		Traffic Avoidance	yes	Use of G-III on similar flight plan	1	1	
	Detect traffic	**5.4.2.3.1**	CA F1	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Track traffic	**5.4.2.3.2**	CA F2	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Evaluate collision potential	**5.4.2.3.3**	CA F3	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Prioritize collision threats	**5.4.2.3.4**	CA F4	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Determine avoidance maneuver	**5.4.2.3.5**	CA F5	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Convey threat information to the pilot	**5.4.2.3.5.2**	HSI F7a	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Command maneuver	**5.4.2.3.6**	CA F6	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Control collision avoidance system	**5.4.2.3.6.1**	HSI F7b		yes	Range tests with G-III & ADS-B	1	1	
	Execute Maneuver	**5.4.2.3.7**	CA F7	Traffic Avoidance	yes	Range tests with G-III & ADS-B	1	1	
	Request weather information	**5.4.3.1.1.1**	HSI F8b	Mission Operations	yes		1	1	
	Convey weather information to the UAS pilot	**5.4.3.1.1.2**	HSI F8a	Mission Operations	yes		1	1	
	Evaluate potential weather conflicts	**5.4.3.1.2**		Mission Operations	yes		1	1	
	Coordinate weather avoidance maneuver	**5.4.3.2**		Mission Operations	yes		1	1	
	Command weather avoidance maneuver	**5.4.3.3**		Mission Operations	yes		1	1	
	Control weather awareness system	**5.4.3.3.1**	HSI F8c	Mission Operations	yes		1	1	
	Execute weather avoidance maneuver	**5.4.3.4**		Mission Operations	yes		1	1	
G REQUIREMENTS	Uplink information	**5.5.1.1.1**	C2 F1.1	Command & Control	yes		1	1	
	Downlink information	**5.5.1.1.2**	C2 F1.2	Command & Control	yes		1	1	
	Consistent operations	**5.5.1.1.3**	C2 F1.3	Command & Control	yes		1	1	
	Provide Situational Awareness and Health & Status	**5.5.1.2.1**	C2 F2.1	Command & Control	yes		1	1	
	Provide C2 Directives	**5.5.1.2.2**	C2 F2.2	Command & Control	yes		1	1	
	Prioritize Information Exchanges	**5.5.1.2.3**	C2 F2.3	Command & Control	yes		1	1	
	Coexist Within the NAS	**5.5.1.2.4**	C2 F2.4	Command & Control	no	Does Western US Mission qualify as yes?		1	
	Distinguish Between UA's	**5.5.1.2.5**	C2 F2.5	Command & Control	no			1	
	Physical Security	**5.5.1.3.1**	C2 F3.1	Command & Control	yes		1	1	
	Link Security	**5.5.1.3.2**	C2 F3.2	Command & Control	no			1	
	Link Interference	**5.5.1.3.3**	C2 F3.3	Command & Control	no			1	
	Transitioning Between LOS/BLOS	**5.5.1.4.1**	C2 F4.1	Command & Control	yes		1	1	

CROSS-CUTTIN	Transitioning Between Control Stations	**5.5.1.4.2**	C2 F4.2	Command & Control	yes		1	1	
	Convey System Status to the Pilot	**5.5.2.1.1**	HSI F3	Mission Operations	yes	mission planning	1	1	
	Determine Contingency Event	**5.5.2.2**		Mission Operations	yes	mission planning	1	1	
	Prioritize Contingency Events	**5.5.2.3**		Mission Operations	yes	mission planning	1	1	
	Produce Mitigation Command	**5.5.2.4**		Mission Operations	yes	mission planning	1	1	
	Enable Pilot to Manage Contingencies	**5.5.2.4.1**	HSI-F9	Mission Operations	yes	mission planning	1	1	
	Execute Mitigation Command	**5.5.2.5**		Mission Operations	no			1	
							65	72	
							90%		

Equipage Requirements		

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